

Ser. No. 09/980,892

Response to Office Action of 21 May 2003

Atty Docket 117040-51

AMENDMENTS TO THE CLAIMS

Please amend the claims to conform to the following listing of claims:

LISTING OF THE CLAIMS

1. (currently amended) A voltage-controlled oscillator oscillating at a controllable oscillator frequency comprising:
 - an LC-resonant circuit with at least one first inductor;
 - at least one controllable switching device, connected to said LC-resonant circuit to periodically take on a conducting and a non-conducting state at the oscillator frequency; and
 - at least one second inductor which can be periodically switched in parallel or in series connection with said at least one first inductor of the LC-resonant circuit by way of the at least one controllable switching device actuated at the oscillator frequency;wherein the at least one controllable switching device has a control input for controlling, by means of a control voltage, a portion of an oscillation period of the LC-resonant circuit during which portion the second inductor is connected to said LC-resonant circuit.
2. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
 - the at least one second inductor is arranged to be periodically switchably connected to the LC-resonant circuit in parallel to one said first inductor.
3. (currently amended) The voltage-controlled oscillator of claim 1, wherein:
 - the relationship of the duration of the conducting state and the duration of the non-conducting state of the at least one controllable switching device ~~means~~ within an oscillation period of the oscillator varies, depending on the control voltage.
4. (cancelled)
5. (currently amended) The voltage-controlled oscillator of claim 1, wherein:
 - the at least one controllable switching device ~~means~~ comprises switching transistors.
6. (previously presented) The voltage-controlled oscillator of claim 17, wherein:

Ser. No. 09:980,892

Response to Office Action of 21 May 2003

Atty Docket: 117040-51

the MOSFETs have gate terminals that are connected to the control input of the control voltage.

7. (previously presented) The voltage-controlled oscillator of claim 6, wherein:
the MOSFETs have gate terminals that are connected to parts of the circuit arrangement carrying the oscillator frequency.
8. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
the oscillator is of a CMOS or bipolar technology.
9. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
the oscillator is used in frequency synthesizers for wide-band systems and for multi-band uses and for clock production and clock recovery in high-speed circuits such as for example microprocessors and memories.
10. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
a voltage-controlled capacitance is integrated in the oscillator, which is connected to a tuning voltage by way of a further control input, the tuning input.
11. (previously presented) The voltage-controlled oscillator of claim 10, wherein:
the voltage-controlled capacitance is embodied by means of at least one variable capacitor diode, wherein the effective capacitance depends on the tuning voltage at the tuning input.
12. (previously presented) The voltage-controlled oscillator of claim 10, wherein:
the tuning input of the oscillator is connected to an output of a phase-locked loop and the output of the voltage-controlled oscillator is connected to an input of the phase-locked loop.
13. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
the noise of the control voltage at the control input is blocked out by means of a high capacitance between the control input and ground.

Ser. No. 09/980,892

Response to Office Action of 21 May 2003

Atty Docket 117040-51

14. (previously presented) The voltage-controlled oscillator of claim 10, wherein:
the tuning input of the voltage-controlled oscillator is connected to the output of a phase-locked loop and the control input of the voltage-controlled oscillator is connected to an output of a further phase-locked loop.
15. (previously presented) The voltage-controlled oscillator of claim 2, wherein:
the time-averaged effective inductance varies, depending on the control voltage according to the relationship of the duration of the conducting state and the duration of the non-conducting state of the switching means within an oscillation period of the oscillator.
16. (previously presented) The voltage-controlled oscillator of claim 35, wherein:
the time-averaged effective inductance varies, depending on the control voltage according to the relationship of the duration of the conducting state and the duration of the non-conducting state of the switching means within an oscillation period of the oscillator.
17. (previously presented) The voltage-controlled oscillator of claim 5, wherein:
the switching transistors are MOSFETs.
18. (currently amended) The voltage-controlled oscillator of claim 2, wherein:
the at least one controllable switching device ~~means~~ comprises switching transistors.
19. (previously presented) The voltage-controlled oscillator of claim 18, wherein:
the switching transistors are MOSFETs.
20. (currently amended) The voltage-controlled oscillator of claim 35, wherein:
the at least one controllable switching device ~~means~~ comprises switching transistors.
21. (previously presented) The voltage-controlled oscillator of claim 20, wherein:
the switching transistors are MOSFETs.

Ser. No. 09/980,892

Response to Office Action of 21 May 2003

Atty Docket 117040-51

22. (currently amended) The voltage-controlled oscillator of claim 36, wherein:
the at least one controllable switching device ~~means~~ comprises switching transistors.
23. (previously presented) The voltage-controlled oscillator of claim 22, wherein:
the switching transistors are MOSFETs.
24. (previously presented) The voltage-controlled oscillator of claim 19, wherein:
the MOSFETs have gate terminals that are connected to the control input of the control
voltage.
25. (previously presented) The voltage-controlled oscillator of claim 21, wherein:
the MOSFETs have gate terminals that are connected to the control input of the control
voltage.
26. (previously presented) The voltage-controlled oscillator of claim 23, wherein:
the MOSFETs have gate terminals that are connected to the control input of the control
voltage.
27. (previously presented) The voltage-controlled oscillator of claim 24, wherein:
the MOSFETs have source terminals that are connected to parts of the circuit
arrangement carrying the oscillator frequency.
28. (previously presented) The voltage-controlled oscillator of claim 25, wherein:
the MOSFETs have source terminals that are connected to parts of the circuit
arrangement carrying the oscillator frequency.
29. (previously presented) The voltage-controlled oscillator of claim 26, wherein:
the MOSFETs have source terminals that are connected to parts of the circuit
arrangement carrying the oscillator frequency.

Ser. No. 09/980,892

Response to Office Action of 21 May 2003

Atty Docket 117040-51

30. (previously presented) The voltage-controlled oscillator of claim 27, wherein:
the oscillator is of a CMOS or bipolar technology.
31. (previously presented) The voltage-controlled oscillator of claim 28, wherein:
the oscillator is of a CMOS or bipolar technology.
32. (previously presented) The voltage-controlled oscillator of claim 29, wherein:
the oscillator is of a CMOS or bipolar technology.
33. (previously presented) The voltage-controlled oscillator of claim 10, wherein:
the voltage-controlled capacitance is embodied by means of at least one variable
capacitor diode, wherein the effective capacitance depends on the tuning voltage at the tuning
input.
34. (previously presented) The voltage-controlled oscillator of claim 33, wherein:
the tuning input of the oscillator is connected to an output of a phase-locked loop and the output
of the voltage-controlled oscillator is connected to an input of the phase-locked loop.
35. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
the second inductor is arranged to be periodically switchably connected to the LC-
resonant circuit in series with one said first inductor.
36. (previously presented) The voltage-controlled oscillator of claim 1, wherein:
the LC-resonant circuit has at least two first inductors; and
the second inductor is arranged to be periodically switchably connected to the LC-
resonant circuit, in series with a first of the at least two first inductors and in parallel with a
second of the at least two first inductors.